UNITED STATES PATENT AND TRADEMARK OFFICE

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2116	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/629,207	LEE ET AL.
	Examiner	Art Unit	
	FAHMIDA RAHMAN	2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>21 January 2009</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>34-48</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>34-43, 45-48</u> is/are rejected.
7)☒ Claim(s) <u>44</u> is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some *   c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20090226

DETAILED ACTION

1.   This action is in response to communications filed on 1/21/09.

2.   Claims 1-33 have been cancelled.

3.   Claims 34-48 have been added.

4.   Thus, claims 34-48 are pending.

Claim Objections

5.   Claims 35-46 are objected to because of the following informalities:

Claim 35 recites "at power management state" in line 7, which should be

changed to "a power management state".

In addition, claim 35 recites "volume or traffic" in line 10, which should be

changed to "volume of traffic".

Claim 44 recites "the power state" in line 4, which should be changed with "the

power management state".

Claims 36-46 depend on claim 35 and incorporate the informalities.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

6.   Claims 47-48 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention.

For claim 47, the use of the phrase "adapted to" renders these claims indefinite

because the claim scope is not limited by claim language that suggests or makes

optional but does not require steps to be performed, or by claim language that

does not limit a claim to a particular structure (See MPEP 2111.04).

Claim 48 depends on claim 47 and incorporates the ambiguity.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section
> 122(b), by another filed in the United States before the invention by the applicant for patent or
> (2) a patent granted on an application for patent by another filed in the United States before
> the invention by the applicant for patent, except that an international application filed under
> the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an
> application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 34-37, 39-41, 46-48 are rejected under 35 U.S.C. 102(e) as being

anticipated by Mills et al (US Patent 6795450).

For claim 34, Mills et al teach the following limitations: A method for optimizing

power consumption (line 47 of column 10) in a communication system (lines 44-

50 of column 10; Fig 1) comprising a network interface and a host computer

(lines 39-41 of column 11 mention that the invention is applicable for network

nodes. Lines 45-60 of column 11 mention that the network device is used to refer

to a computer linked to a network via network interface card), the method

comprising:

- determining, by the network interface, at least one power mode of the host

  computer from a plurality of possible power modes (lines 45-50 of column

  10 mention that the network nodes may be "idle" or have entered "sleep"

  or "suspended" mode, when communication between a node and a hub is

  limited. Lines 60-65 of column 9 mention that the network may have full

  power operation mode for supporting full high bandwidth communication.

  Thus, the network interface can determine a power mode among a

  plurality of possible modes, such as "full communication" or "limited

  communication", based on amount of communication);

- and selecting, by the network interface, at least one network interface

  power management state (link suspend state mentioned in lines 60-65 of

  column 9) from a plurality of possible power management

  states based on the at least one power mode determined (lines 44-50 of

  column 10; lines 60-65 of column 9).

For claim 35, note lines 48-56 of column 12, which mentions that network traffic intensity is detected and a power management mode is selected based on traffic.

For claim 36, lines 54-56 of column 13 and lines 29-35 of mention that the system improves implementation of a PC's ACPI implementation. Since, ACPI supports D0-D3 power management states, the ACPI compatible PCs in LAN can provide four power management states: fully operational DO, in between power management states D1-D2, Wake On LAN D3 hot, "fully powered down" in D3 cold. This invention also provides two types of idle state: standard Idle or Link Suspend Idle as shown in Fig 3.

For claim 37, lines 60-65 of column 9 mention that the full power mode supports full high bandwidth communication. Lines 23-26 of column 4 mention that the speed of the link is set up by auto-negotiation to set up the operation mode of the communications link. Thus, the communication device operates at a frequency supporting high bandwidth transmission.

For claim 39, lines 10-15 of column 5 mention that the 100BASE-TX will reconfigure it to lower 10BASE-T. Thus, the throughput is reduced when a high capacity PHY is connected to a low capacity PHY.

For claim 40, lines 10-15 of column 5 mention that the 100BASE-TX will reconfigure it to lower 10BASE-T. The highest common operational mode is chosen. Thus, the throughput is reduced when a high capacity PHY is connected to a low capacity PHY. Since, the invention is applicable to 1000BASE-T, the throughput would be reduced to 1000BASE-T to 10BASE-T when 1000BASE-T would be connected to 10Base-T.

For claim 41, lines 1-5 of column 23 mention about switching off the transmitter, which includes reducing clock speed.

For claim 46, lines 50-55 of column 14 mention about lost data detection on a link. The MAC is the controlling layer of PHY as shown in Fig 1. Thus, the reduction of duty cycle (lines 5-10 of column 10) requires switching clock speed from the MAC layer.

For claim 47, Mills teaches the following limitations: A system for optimizing power consumption (line 47 of column 10) in a communication system (lines 44-50 of column 10; Fig 1) used in a Gigabit Ethernet environment (Lines 18-20 of column 12 mention that the invention is for fast Ethernet. Lines 25-26 of column 12 mention that the concept is expandable to similar other local area network such as 1000BASE-T, which is a Gigabit transmission. Thus, the invention

supports Gigabit Ethernet transmission) comprising: a PHY (124) configurably

coupled to the host processor (lines 15-32 of column 1) and adapted to detect at

least one host power mode (lines 45-65 of column 10) from a plurality of possible

host power modes (full power or low power based on amount of communication,

as mentioned in lines 61-66 of column 9) and locally select based at least in part

on the host power mode detected, at least one power management state from a

plurality of power management states for operation of the system (lines 45-50 of

column 10) and a MAC interfacing with at least said PHY (Fig 1).

For claim 48, note line 27 of column 3, which mention that PHY may be a multi-

channel device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

8.   Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Mills et al (US Patent 6795450), in view of applicant's admission of prior art.

For claim 38, Mills et al do not teach that the frequency to be 62.5 MHz. Applicant mentions that the frequency 62.5 MHz is used to support 1000BASE-T in [39] of page 11. Since, the invention of Mills et al is applicable to 1000BASE-T, the frequency should be 62.5 MHz.

9.   Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (US Patent 6795450), in view of Yamamoto et al (US Patent 5778237).

For claim 42, Mills et al do not teach reducing clock for power management. Although, Mills teaches the reduced link speed (lines 20-30 of column 4).

Yamamoto et al teach that the clock is reduced to 6.25 MHz in a power management state (lines 5-15 of column 1 ; Fig 9B).

It would have been obvious to one ordinary skill in the art to combine the teachings of Mills et al and Yamamoto et al. One ordinary skill would be motivated to reduce clock speed to 6.25 MHz, since 10BASE-T can support such clock speed. The clock reducing mechanism is widely used in the art for reducing power consumption.

10. Claim 43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (US Patent 6795450), in view of Gaur (US Patent Application Publication 2003/0088797).

For claim 43, Mills does not teach detecting host computer is using battery or AC power and selecting the power state based on the detection of whether the host computer is using battery or AC power.

Gaur teaches detecting host computer is using battery or AC power and selecting the power state based on the detection of whether the host computer is using battery or AC power (Fig 2).

It would have been obvious for one ordinary skill in the art at the time the invention was made to combine the teachings of Mills and Gaur. One ordinary skill would be motivated to determine whether the host is connected to AC power or battery, and selecting the power state based on that, since that makes the most efficient use of power without sacrificing network connectivity.

For claim 45, Mills teaches detecting absence of traffic (lines 55-57 of column 12 mention that PHY power consumption is reduced when a node is placed in sleep mode, which includes absence of traffic) and selecting state where PHY uses polling (lines 5-10 of column 13). Mills does not teach about battery usage by host computer. Gaur teaches detecting host computer is using battery or AC power and selecting the power state based on the detection of whether the host computer is using battery or AC power (Fig 2). It would have been obvious for one ordinary skill in the art to determine whether the host is connected to battery, since that makes the most efficient use of power without sacrificing network connectivity.

Allowable Subject Matter

11.   Claim 44 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to overcome the claim objections as set forth in the action.

Response to Arguments

Applicant's arguments filed on 1/21/09 have been considered but they are not persuasive.

Applicant argues that Mills does not teach determining, by the network interface,

a power mode of the host, and selecting, by the network interface, a power

management state.

Examiner disagrees. Lines 40-65 of column 11 mention that network node, PHY,

network device, a computer linked to a network via a network interface card, are

interchangeable for the invention. Besides, lines 50-56 of column 12, lines 53-65

of column 20, lines 55-65 of column 22 mention that LS capable PHY reduces

the power consumption when traffic intensity is reduced and PHY determines the

presence of data packet. Thus, the network interface detects the volume of traffic

and determines whether to reduce power.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Fahmida Rahman whose telephone number is

571-272-8159.   The examiner can normally be reached on Monday through

Friday 8:30 - 5:30. If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-

272-3667. The fax phone number for the organization where this application or

proceeding is assigned is 571-273-8300. Information regarding the status of an

application may be obtained from the Patent Application Information Retrieval

(PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR.   Status information for unpublished

applications is available through Private PAIR only. For more information about

the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on

access to the Private PAIR system, contact the Electronic Business Center

(EBC) at 866-217-9197 (toll-free).

/Fahmida Rahman/
Examiner
Art Unit 2116

/Thomas Lee/

Supervisory Patent Examiner, Art Unit 2115